

Semester: IV

Class: S.Y.B. Com

Duration: 2 Hours

Paper Code and Title: (CC 12) Fundamentals of Investment

Max. Marks: 80

No. of Pages: 02

Date: 7<sup>th</sup> June 2022

1) All Questions are Compulsory; However Internal choice is available.

Instructions: 2) Answer sub- Questions in Question No.1 and 2 in not more than 100 words.

3) Answer Questions No.3 to Question No.6 in not more than 400 words.

4) Figure to the right indicate full marks for respective questions/ Sub- question.

5) Use of Non-scientific Calculator is allowed.

Q1. Answer any four of the following.

16 Marks

- i. Merits of Online trading
- ii. Stock Markets Indices in India (any four)
- iii. Types of Market risks under Investment risk
- iv. Reinvestment risk as a type of bond risk
- v. U.S. Treasury Bond
- vi. Malkiels Theorems on Bond Pricing

Q2. Answer any four of the following.

16 Marks

- i. Line Chart
- ii. Liquidity ratios
- iii. Functions of commodities exchange
- iv. CRISIL
- v. A bond of ₹ 1000 has a coupon rate of 8% p.a. and maturity period of 3 years. The bond is currently selling at ₹ 910. What is the yield to maturity in the investment in this bond?

vi. A bond of ₹ 1000 each has a coupon rate of 10 % p.a. and maturity period of 20 years. The bond is currently selling at ₹1050. What is the yield to maturity in the investment in this bond?

**Q3. a)** Explain RBI as a regulator of the Indian Securities market along with its functions. **12 Marks**

**OR**

**b)** Discuss sources of financial information in detail. **12 Marks**

**Q4. a)** Explain meaning of Bonds along with its features in detail. **12 Marks**

**OR**

**b)** Discuss Bond Market Index along with its benefits. **12 Marks**

**Q5. a)** Explain Economic Industry Company Analysis (EIC Analysis) of a company. **12 Marks**

**OR**

**b)** What is Price to Book Value Ratio? Explain its Advantages and Disadvantages. **12 Marks**

**Q6. a)** Discuss meaning of SEBI along with its features. **12 Marks**

**OR**

**b)** What is Credit Rating? Discuss following Credit Rating agencies. **12 Marks**

i. SMERA

ii. CARE

iii. ONICRA

**XXXXXXXXXXXXXX**

**Swami Vivekanand Vidyaprasarak Mandal's College of Commerce Bori Ponda Goa**  
**Semester End Examination, June 2022**

Semester: IV

Class: S.Y.B. Com

Paper Code and Title: **Income Tax (Direct Tax) (CC 13)**

No. of Pages: 04

Date: 09<sup>th</sup> June 2022

Duration: 2 Hours

Max. Marks: 80

- Instructions:**
- 1) Question No. 1 is Compulsory.
  - 2) Answer any three from Q.NO.2 to Q.NO.6.
  - 3) Each question carries 20 marks.
  - 4) Figures to the right indicate maximum marks.
  - 5) Mention working notes required whenever necessary.

**Q1. Answer the following:**

**20 Marks**

- a) Mr. X is an Indian citizen returned to India on 1<sup>st</sup> July 2020 on a visit. He left India on 25<sup>th</sup> September 2020. Prior to 1-4-2020 he was in India for more than 365 days during the preceding four years 2016-17 to 2019-20.

**What is his residential status for the A.Y 2021-2022.**

- b) Ms. Anamika is employed with a company at Mumbai from 1<sup>st</sup> April 2020. She is paid salary of Rs. 60,000 per month and is granted House Rent Allowance of Rs. 12,000 per month. She pays rent of Rs. 15,000 per month.

**Find out Exempted House Rent Allowance u/s 10(13 A) for the A.Y 2021-2022.**

- c) Mr. Omkar is a Government employee in Goa. He draws salary of 50,000 per month. He received entertainment allowance of Rs. 4,000 per month for the year 2020-2021.

**Calculate the taxable Entertainment allowance u/s 16(iii) for the A.Y. 2021-2022.**

- d) Mr. B has earned the following incomes during the financial year ended on 31<sup>st</sup> March, 2021. **Compute his Gross Total Income for the Assessment Year 2021-2022 assuming that he is:**

- a. Resident and Ordinarily Resident in India.
- b. Resident but not Ordinarily Resident in India.
- c. Non-Resident in India.

Sr. No.	Particulars	Amount (In Rs.)
1.	Income from agriculture in America.	1,40,000
2.	Rent from a property in Delhi received in USA.	80,000
3.	Interest from deposits with Indian Bank in Mumbai.	1,20,000
4.	Past untaxed profit earned outside India brought to India.	5,40,000
5.	Dividend from Japanese Company, received in India.	1,50,000
6.	Income from agriculture in Maldives.	1,20,000
7.	Income from business in Srilanka controlled from India.	50,000
8.	Payments received in Dubai, for services rendered in Japan.	55,000

**Q2.** Ms. Saloni is an employee of TATA company in Mumbai since 2015. She furnishes the following details of her income for the year ending 31<sup>st</sup> March 2021. 20 Marks

- i. Salary Rs. 15,000 pm.
- ii. Arrears of salary Rs. 28,000.
- iii. House Rent Allowance Rs. 4,000 pm
- iv. Entertainment Allowance Rs. 1500 pm.
- v. Gratuity Rs. 8,00,000 (Mrs. Saloni is covered under payment of Gratuity Act 1972).

Ms. Saloni stays in Rented Accommodation in Mumbai and pays Rent of Rs. 3,000 pm. Professional tax deducted from her salary is Rs. 2,500.

**You are required to Ascertain Taxable Income from Salary for A.Y 2021 - 2022.**

Q3.

Mr. Y owner of steel manufacturing company, particulars for which for year ended 31<sup>st</sup> March 2021 was as follows.

20 Marks

Particulars	Rs.	Particulars	Rs.
To salary to staff	3,60,000	By G/P	10,00,000
To Office Rent	60,000	By LIC ( Amt received under key man Insurance)	5,00,000
To Commission	1,00,000		
To RDD	80,000		
To Depreciation on Machinery	1,25,000		
To entertainment expenses	1,75,000		
To advertisement	47,500		
To Bonus to staff	22,500		
<u>LIC Premium</u>			
Own Life      30,000			
Staff            30,000	60,000		
To Printing and stationary	70,000		
To Net profit	4,00,000		
	<u>15,00,000</u>		<u>15,00,000</u>

**Additional information:**

- Commission includes Rs. 15,000 paid for medical expenses for the proprietor.
- Depreciation as per Income Tax Rule is Rs. 1,50,000.
- Rs. 15,000 included in advertisement as being incurred for political party.
- Entertainment Exp. Amounting to Rs. 30,000 was not related to business.

You are required to compute the taxable business income of Mr. Y for AY 2021-2022.

Q4.

Answer Any Four out of the following in relation to Income Tax Act:

20 Marks

- Define Person u/s 2(31).
- Explain Insurance premium u/s 36 (1)(i).
- Write a short note on Leave Travel Concession u/s 10(5).
- Write in brief Special allowance u/s 10(14).
- Explain Contribution towards Approved Gratuity Fund u/s 36 (1)(v).

**Q5. Answer Any Four out of the following in relation to Income Tax Act:**

- a) Write in brief Permanent Account Number (PAN) u/s 139A.
- b) Explain Interest on Borrowed Capital u/s 36 (1)(iii).
- c) What is Gratuity u/s 10(10).
- d) Explain Assessee u/s 2(7).
- e) Write in brief Bad Debts Section 36 (1)(vii).

**Q6. Answer Any Four out of the following in relation to Income Tax Act:**

- a) Define Business u/s 2(13).
- b) Write in brief Repairs and insurance of machinery, plant and furniture (Section 31).
- c) Explain Payment received from Provident Fund u/s 10(11).
- d) Define Income u/s 2(24).
- e) Explain Bonus/Commission to employees u/s 36 (1)(ii).

Semester: IV

Class: S Y B Com

Duration: 2 Hours

Paper Code and Title: Accounting for Service Organization

Max. Marks: 80

No. of Pages: 4

Date: 11<sup>th</sup> June 2022

1) Question No. 1 is Compulsory.

Instructions: 2) Answer any three from Q.NO.2 to Q.NO.6.

3) Each question carries 20 marks.

4) Figures to the right indicate maximum marks.

5) Mention working notes required whenever necessary.

**Q.1** Sonam Fire insurance Ltd gives you the following information **20 Marks**  
Prepare Revenue Account for fire insurance business for the year ended 31<sup>st</sup> March 2022.

Particulars	Amount (In Rupees)	Particulars	Amount (In Rupees)
Claim admitted but not paid (31.3.2022)	2,20,000	Premium received less reinsurance	12,45,000
Commission Paid	2,10,000	Reserve for unexpired risks 1.4.2021	4,70,000
Commission on reinsurance received	52,000	Additional reserve 1.4.2021	95,000
Share transfer fees	18,000	Claims 1.4.2021 outstanding	1,02,000
Management expense	3,12,000	Dividend on share capital	70,000
Bad debts	11,000	Premium out standing 1.4.2021	1,40,000
Claims Paid	90,000	Premium out standing 31.3.2022	1,50,000
Profit & loss appropriation	39,000		

Q. 2

The following is the trial balance Apsara Hotel Ltd as on 31<sup>st</sup> March 2022. You are required to prepare Trading and Profit & Loss Account and Balance sheet as on that date

20 Marks

Liabilities	Debit Amount (In Rupees)	Credit Amount (In Rupees)
Capital	-	4,00,000
Cash at bank	80,000	-
Apartments	-	2,50,000
Meals and refreshment	-	2,90,000
Provisions and Purchases	2,20,000	-
Bank interest	-	10,000
Miscellaneous receipt	-	30,000
Discount earned	-	6,000
Sundry supplier	-	24,000
Stock	20,000	-
Kitchen equipment	80,000	-
Printing and stationary	10,000	-
Postage and telegram	9,000	-
Wages and salaries	1,00,000	-
Fuel	19,000	-
Repairs and renewal	5,000	-
Furniture	45,000	-
Advertising	10,000	-
Utensils	30,000	-
Sundry Customers	40,000	-
Drawings	30,000	-
Bad debts	9,000	-
Rates	3,000	-
Land and Building	3,00,000	-
	10,10,000	10,10,000

**Adjustments:**

1. An amount of Rs 12,000 representing accommodation , Rs 5,600 and meals Rs 6,400 to be charged to the proprietor.
2. An amount of Rs 24,000 representing accommodation Rs 6,000 and meals Rs 18,000 to be charged to staff who are provided with free boarding and lodging.
3. Provide for wages and salaries Rs 8,000.



4. Depreciate building by 5% , kitchen equipment by 10% , furniture by Rs 1,500 . Utensils were revalued at Rs 25,000

**Q. 3** The following is the trial balance of Jan Dhan Bank Ltd as on 31<sup>st</sup> March 2022. **20 Marks**

Particulars	Debit Amount (In Rupees)	Credit Amount (In Rupees)
Share capital 30,000 shares of Rs, 10 each	-	3,00,000
Statutory Reserve	-	4,00,000
Deposits :	-	-
Fixed		2,78,000
Saving		4,50,000
Current		3,74,000
Cash in hand	2,90,000	-
Cash with Reserve Bank in India	4,20,000	-
Interest and discount	-	3,00,000
Commission and brokerage	-	50,000
Interest in fixed deposit	30,000	-
Interest on saving deposits	20,000	-
Interest on current deposits	12,500	-
Salaries ( Including Rs 12,000 to manager)	1,31,000	-
Rent , Insurance and taxes	4,000	-
Postage and telegram	900	-
Printing and stationary	7,000	-
Audit fees	4,000	-
Depreciation	3,300	-
Investments in shares	84,000	-
Loans, cash credit and overdraft	4,90,000	-
Bills discounted and purchased	1,80,000	-
Government bonds	1,60,000	-
Furniture	40,000	-
Premises	3,00,000	-
Branch adjustment account	-	24,700
	<b>21,76,700</b>	<b>21,76,700</b>

Additional information

1. Rebate on bills discounted Rs 27,000.
2. Create Reserve for bad and doubtful debts Rs. 11,000.
3. Acceptance on behalf of customers Rs 80,000.

You are required to prepare profit and loss account for the year ended 31<sup>st</sup> March 2022

Q.4

- a) Keshav Fire insurance co ltd commenced its business on 1.04.2021. It submits you the following information for the year ended 31<sup>st</sup> March 2022.

10 Marks

Particulars	Amount (In Rupees)
Premiums received	30,00,000
Re- insurance premium paid	2,00,000
Claims paid	14,00,000
Expense of management	6,00,000
Commission paid	1,00,000
Claims outstanding on 31.3.2021	2,00,000
Investments	1,00,000

Create reserve for unexpired risks @ 40 %. Prepare revenue account for the year ended 31<sup>st</sup> March 2022.

- b) Highlight salient features of hotel accounting.

10 Marks

Q.5

- a) Elucidate Legal provisions related to banking companies in India.

10 Marks

- b) Explain in brief reinsurance accepted and reinsurance ceded.

10 Marks

Q.6

Answer any four of the following.

20 Marks

- Write a short note on fire insurance.
- Explain concept of visitor ledger.
- State and explain any four extended services of banking companies.
- What is reinsurance?
- State different types of advances.

Swami Vivekanand Vidyaprasarak Mandal's College of Commerce Bori Ponda Goa  
Semester End Examination, June 2022

Semester: IV

Class: S.Y.B. Com

Paper Code and Title: Companies act & IPR Laws SEC II

No. of Pages: 02

Date: 14<sup>th</sup> June 2022

Duration: 2 Hours

Max. Marks: 60

- Instructions:
- 1) All Questions are Compulsory, However Internal choice is available.
  - 2) Answer sub- Questions in Question No.1 and 2 in not more than 100 words.
  - 3) Answer Questions No.3 to Question No.5 in not more than 400 words.
  - 4) Figure to the right indicate full marks for respective questions/ Sub- Question.

- Q1. Write short notes on any three of the following: 3 x 4=12 Marks
- a) E-voting
  - b) Indoor management
  - c) One-person Company
  - d) Whistle-blowing.
  - e) Dividends

- Q2. Write short notes on any three of the following: 3 x 4=12 Marks
- a) Postal Ballot.
  - b) Books of Accounts.
  - c) Legal positions of Directors
  - d) Promoters
  - e) Article of Association

- Q3. A) Define Company and Explain Characteristics of Company. 12 Marks
- OR
- B) Define Prospectus. What are the different kinds of Prospectus? 12 Marks

**Q.4**

**A) Define Director and discuss the classification of Directors.**

**12 Marks**

**OR**

**B) Explain the concept of Meeting and its kind.**

**12 Marks**

**Q.5**

**A) State various modes of winding up of Company?**

**12 Marks**

**OR**

**B) Explain the Concept Auditors report.**

**12 Marks**

Semester: IV

Class: S.Y.B. Com

Paper Code and Title: **Collective Bargaining and Negotiation Skills (SEC 2)**

No. of Pages: 02

Date: 14<sup>th</sup> June 2022

Duration: 2 Hours

Max. Marks: 80

- Instructions:**
- 1) All Questions are Compulsory, However Internal choice is available.
  - 2) Answer sub- Questions in Question No.1 and 2 in not more than 100 words.
  - 3) Answer Questions No.3 to Question No.6 in not more than 400 words.
  - 4) Figures to the right indicate full marks for respective questions/ Sub-Question.

- Q1.** Answer Any Four of the following **16 Marks**
- i) Concept of Collective Bargaining.
  - ii) Short note on Hicks Analysis of wage setting.
  - iii) Short note on Conflict Choice Model.
  - iv) Any four objectives of Collective Bargaining.
  - v) Short note on Level of Bargaining.
  - vi) Any four merits of Collective Bargaining.

- Q2.** Answer Any Four of the following **16 Marks**
- i) Concept of Negotiation.
  - ii) Concept of Fractional bargaining.
  - iii) Short note on Coalition bargaining.
  - iv) Concept of Contract Ratification.
  - v) Short note on Impasse Resolution.
  - vi) Any four characteristic of Negotiation.

- Q3.** A) Explain the characteristic of Collective Bargaining. **12 Marks**

**OR**

B) Elaborate on the critical issues in Collective Bargaining.

12 Mark

**Q4.** A) Explain the pre requisites for Successful Collective Bargaining.

12 Mark

**OR**

B) Elaborate on the Difficulties in Collective Bargaining Process.

12 Mark

**Q5.** A) Explain the Negotiation Process in detail.

12 Mark

**OR**

B) Elaborate on the guideline on Effective Negotiation.

12 Mark

**Q6** A) Explain the various approaches in Collective Bargaining.

12 Mark

**OR**

B) Elaborate on the phases involve in Collective Bargaining Process.

12 Mark

**Swami Vivekanand Vidyaprasarak Mandal's College of Commerce Bori Ponda Goa**

**Semester End Examination, June 2022**

Semester: IV

Class: S.Y.B. Com

Duration: 1 & 1/2 Hours

Paper Code and Title: **E-Commerce and E-Accounting (GE 5)**

Max. Marks: 40

No. of Pages: 01

Date: 16<sup>th</sup> June 2022

**1) Question No. 1 is Compulsory.**

**Instructions: 2) Answer any three from Q.NO.2 to Q.NO.6.**

**3) Figures to the right indicate maximum marks.**

- |            |  |                 |
|------------|--|-----------------|
| <b>Q1.</b> | <b>State and Explain the categories of E-commerce.</b>           | <b>10 Marks</b> |
| <b>Q2.</b> | <b>Explain in detail essentials of E-Commerce Websites.</b>      | <b>10 Marks</b> |
| <b>Q3.</b> | <b>Elaborate applications of Mobile Commerce.</b>                | <b>10 Marks</b> |
| <b>Q4.</b> | <b>What is E-CRM? Explain the phases of E-CRM.</b>               | <b>10 Marks</b> |
| <b>Q5.</b> | <b>Explain the Advantages &amp; Disadvantages of E-Commerce.</b> | <b>10 Marks</b> |
| <b>Q6.</b> | <b>What is E-SCM? Explain the Components of E-SCM.</b>           | <b>10 Marks</b> |

**Swami Vivekanand Vidyaprasarak Mandal's College of Commerce Bori Ponda Goa**  
**Semester End Examination, June 2022**

Semester: IV

Class: S.Y.B. Com

Paper Code and Title: Indian Economy (GE 6)

No. of Pages: 02

Date: 18<sup>th</sup> June, 2022

Duration: 2 Hours

Max. Marks: 80

- Instructions:**
- 1) All Questions are Compulsory, However Internal choice is available.
  - 2) Answer sub- Questions in Question No.1 and 2 in not more than 100 words.
  - 3) Answer Questions No.3 to Question No.6 in not more than 400 words.
  - 4) Figures to the right indicate full marks for respective questions/Sub-Question.

**Q1.** Answer any four of the following **16 Marks**

- i) Short note on Human Development Index?
- ii) What is Economic Growth?
- iii) What is Literacy rate?
- iv) Short note on Economic Development?
- v) What is Maternal Mortality Rate?
- vi) What is life Expectancy rate?

**Q2.** Answer any four of the following **16 Marks**

- i) Short note on LPG Model.
- ii) Explain any two reforms in External sector.
- iii) Write a note on Nehru Mahalanobis Model.
- iv) Any four unorganized sources of finance for Agriculture.
- v) Explain any four defects in Agriculture Marketing.
- vi) Explain the importance of Agriculture sector to Indian Economy.

**Q3.** A) Explain any six features of Underdeveloped Economy. **12 Marks**

OR

B) Highlight any six features of Developed Economy. **12 Marks**



- Q4.** A) Explain the features of Indian Economy. **12 Marks**
- OR
- B) Explain in detailed the concept Demographic Dividend. **12 Marks**
- Q5.** A) Highlight the policies for Agriculture Development. **12 Marks**
- OR
- B) Illustrate the failures of Economic Planning in India. **12 Marks**
- Q6** A) Explain the reforms in Capital Market. **12 Marks**
- OR
- B) Highlight the 1991 Reforms in Banking Sector. **12 Marks**

**Swami Vivekanand Vidyaprasarak Mandal's College of Commerce Bori Ponda Goa**  
**Semester End Examination, June 2022**

Semester: IV

Class: S. Y.B. Com

Duration: 2 Hours

Paper Code and Title: (GE 6) Salesmanship and Sales Management

Max. Marks: 80

No. of Pages: 02

Date: 18<sup>th</sup> June 2022

- Instructions:**
- 1) All Questions are Compulsory; However Internal choice is available.
  - 2) Answer sub- Questions in Question No.1 and 2 in not more than 100 words.
  - 3) Answer Questions No.3 to Question No.6 in not more than 400 words.
  - 4) Figure to the right indicate full marks for respective questions/ Sub- question.

**Q1.**

Answer any four of the following.

**16 Marks**

- a. Scope of Salesmanship
- b. Any four qualities of good salesmanship
- c. Characteristics of Value-added Salespeople
- d. Importance and Process of SMBO techniques.
- e. Types of Sales Forecasting
- f. Delphi Method

**Q2.**

Answer any four of the following.

**16 Marks**

- a. Factors causing need for sales organization
- b. Strategic Customer planning
- c. Elements of Sales Budget
- d. Principles of Value-Added Selling
- e. Sales Contest
- f. Time Series Analysis

Q3. a) What is Selling? Explain importance of Selling in detail.

12 Marks

OR

b) What is Value added Selling? Discuss common personal selling techniques.

12 Marks

Q4. a) Define Sales management. Discuss elements of sales management in detail.

12 Marks

OR

b) What is Sales forecasting? Discuss the factors considered for sales forecasting.

12 Marks

Q5. a) Discuss sales organization structure in detail.

12 Marks

OR

b) Explain importance of Sales Organization.

Q6. a) Elaborate Sales manager functions and its responsibilities.

12 Marks

OR

b) Explain various ways to motivate sales teams.

12 Marks

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Swami Vivekanand Vidyaprasarak Mandal's College of Commerce Bori Ponda Goa  
Semester End Examination, June 2022

Semester: IV

Class: S.Y.B.Com

Paper Code and Title: Business Statistics II (GE5)

No. of Pages: 05

Date: 16<sup>th</sup> June 2022

Duration: 2 Hours

Max. Marks: 80

- Instructions:
- 1) All questions are compulsory.
  - 2) Figures to the right indicate full marks.
  - 3) Use of simple (non-scientific) calculator is allowed.
  - 4) Graph papers and log tables will be supplied on request.

- Q1. Answer the following: 16 Marks
- a) Define Positive and Negative Correlation and give one example each. 3 Marks
  - b) The probability that a person will react for drug is 0.001, out of 2000 individuals checked. Find the probability that
    - i) exactly four
    - ii) more than three individuals get the reaction. 6 Marks(Take  $e^{-2} = 0.135$ )
  - c)
    - i) A box contains 45 tickets numbered 1 to 45. A ticket is drawn at random from the box. Find the probability that the number on the ticket is either divisible by 5 or perfect square. 4 Marks
    - ii) Two die are thrown simultaneously. Find the probability that the sum of the digits on the uppermost faces is 8. 3 Marks

OR

- Q2. Answer the following: 16 Marks
- a) Define multivariate distribution and give two examples: 3 Marks
  - b) An automatic machine makes paper clips from coils of wire. On an average one in 400 paper clips is defective. If the paper clips are packed in boxes of 100, what is the probability that any given box of clips will contain 6 Marks

- i) no defective clip  
 ii) less than 2 defective clips. (Take  $e^{-0.25} = 0.7787$ )
- c) i) A class consists of 20 boys and 30 girls of which half the boys and half the girls have brown eyes. Find the probability that a student chosen at a random is a girl or has brown eyes. **4 Marks**
- ii) Two cards are drawn from a pack of 52 playing cards without replacement. Find the probability that the first card is a queen and the second card is not a queen. **3 Marks**

**Q3.**

Answer the following:

**16 Marks**

- a) Define Sample Space, Event and Impossible Event. **3 Marks**
- b) Calculate Karl Pearson's Coefficient of Correlation for the following data and comment on its value. **6 Marks**

x	6	2	10	4	8
y	9	11	5	8	7

- c) i) A random variable has the following probability distribution. **4 Marks**

x	0	1	2	3
P(x)	0.2	0.5	0.3	0.1

Find:  $E(X)$  and  $\text{Var}(X)$ .

- ii) Find the regression equations if  $\bar{x}=10$ ,  $\bar{y}=15$ ,  $\sigma_x=2$ ,  $\sigma_y=3$  and  $r=0.6$ . **3 Marks**

**OR**

**Q4.**

Answer the following:

**16 Marks**

- a) i) When do we say that two events are independent? **3 Marks**
- ii) Define Random Variable.
- b) Calculate Spearman's Coefficient of Correlation for the following data and comment on its value. **6 Marks**

x	85	90	40	60	73
y	93	90	50	75	65

- c) i) Let A and B be two events with  $P(A) = \frac{1}{5}$ ,  $P(B) = \frac{1}{3}$ ,

4 Marks

$P(A \cap B) = \frac{1}{15}$ . Find  $P(A \cup B)$ ,  $P(A/B)$ ,  $P(B/A)$  and  $P(A \cup B)'$ .

3 Marks

- ii) The probability that A can solve the problem is  $\frac{1}{6}$  and the probability that B can solve is  $\frac{1}{3}$ . What is the probability that both can solve the problem by trying independently.

Q5.

Answer the following:

16 Marks

- a) Explain Simple Random Sampling.  
b) Find the missing value for the following data:

3 Marks

6 Marks

x	2	4	?	6	8
y	18	12	11	8	7

- c) A sample of 300 gave a mean of 8.5 kg and a standard deviation of 1.9 kg. Find 95% and 99% confidence limits for the population mean.

7 Marks

OR

Q6.

Answer the following:

16 Marks

- a) Explain Cluster Sampling.  
b) From the data given below find the most likely y when  $x = 3$ .

3 Marks

6 Marks

x	2	4	6	7	8
y	16	15	18	19	17

- c) A random sample of 800 units from a large consignment showed that 300 were damaged. Find 95% and 99% confidence limits for the proportion of damaged units in the consignment.

7 Marks

Q7.

Answer the following:

- a) Define mutually exclusive events and mutually exhaustive events.
- b) Given the lines of regression as  $x + 2y - 5 = 0$  and  $2x + 3y - 8 = 0$ . Find  $b_{xy}$ ,  $b_{yx}$ ,  $\bar{x}$  and  $\bar{y}$ .
- c) In a well shuffled pack of cards, 2 cards are drawn. Find the probability that
- both are hearts
  - atleast one is a heart
  - atmost one is heart.

OR

Q8.

Answer the following:

- a) State any three properties of a normal curve.
- b) Three coins are tossed. Find the probability of getting
- exactly one tail
  - atleast two heads
  - atmost two heads.
- c) You are given below the following data:

	Mean	Standard Deviation
Advertisement Expenditure (Rs. Crores)	20	5
Sales (Rs. Crores)	120	25

Correlation Coefficient is 0.8

- Estimate :
- the likely sales when advertisement expenditure is Rs.25 Crores
  - the advertisement expenditure when sales is Rs.150 Crores.

Q9.

Answer the following:

- a) Give any 3 merits of simple Random Sampling.

- b) On an average A can solve 60% of the problems. What is the probability of A solving **6 Marks**

- i) No problems out of 8  
ii) Exactly 5 problems out of 8

- c) Compute Spearman's Rank Correlation Coefficient for the following data: **7 Marks**

Rank x	7	6	3	2	3	1	3
Rank y	6	4	7	4	1	1	3

**OR**

Answer the following:

**16 Marks**

- a) Explain Stratified Random Sampling. **3 Marks**

- b) The probability that a student is not a swimmer is  $\frac{1}{5}$ . Out of 5 **6 Marks**

students considered find the probability that

- i) 4 are swimmers  
ii) atleast 4 are swimmers.

- c) Compute Spearman's Rank Correlation Coefficient for the following data: **7 Marks**

Rank x	1	2	3	5	7	3	5
Rank y	1	1	4	7	6	5	1